

New Gastropods from the Bermont Formation (Middle Pleistocene) of the Everglades Basin

Edward J. Petuch

Department of Geology
Florida Atlantic University
Boca Raton, FL 33431, USA

ABSTRACT

Eight new gastropods are described from the poorly-known basal beds ("Holey Land Unit") of the middle Pleistocene Bermont Formation of the Everglades Basin. The new species include *Cypraea* (*Macrocypraea*) *spengleri* n.sp. and *Cypraea* (*Pseudozonaria*) *portelli* n.sp. (Cypraeidae), *Melongena* (*Miccosukea*) *cynthiae* n.sp. and *Melongena* (*Miccosukea*) *holeylandica* n.sp. (Melongenidae), *Scaphella seminole* n.sp. (Volutidae), and *Conus capelettii* n.sp., *Conus griffini* n.sp., and *Conus lemoni* n.sp. (Conidae). Also described is a new subgenus of *Melongena* Schumacher, 1817, *Miccosukea* n.subgen., which represents an endemic Pleistocene species radiation from within the Everglades region.

Key words: Gastropods; Pleistocene; Everglades; Florida.

INTRODUCTION

Of the major surficial stratigraphic units of the Everglades Basin of southern Florida, the middle Pleistocene Bermont Formation is the least known and the most poorly studied. Indeed, the formation did not even receive an official designation until 1974, when DuBar informally named and described this important set of units. Previously (*i.e.*, McGinty, 1970; Hoerle, 1970), the formation was simply referred to as "Unit A" or the "Glades Unit," or, prior to that time, as the "un-named post-Caloosahatchee formation" (*i.e.*, E. Vokes, 1968). Although the formation name still has not been accepted by regional offices of the United States Geological Survey (*vide* Wesley L. Miller, Water Resources Division, USGS, Miami), several workers in the Pleistocene paleontology of southern Florida have adopted its usage and recognize its importance as the "missing link" in the stratigraphic record of the Everglades region (*i.e.*, E. Vokes, 1976, 1984; Petuch, 1985). Since the depositional center of the formation is within the Everglades Basin where there are few sampling sites, only sporadic collections of Bermont material have been made and the molluscan fauna, particularly the gastropod component, is known from only a handful of publications.

In response to increased building and construction in southern Florida, several large new land fill quarries have

been excavated within the Everglades region over the last few years. Two of these in particular, the Capeletti Brothers pit #11 in northern Dade County and the Griffin Brothers pit on the Broward-Palm Beach County line, have cut into extremely fossiliferous beds of the Bermont Formation and have uncovered many new and interesting gastropods. Besides new species, both quarries have yielded large numbers of classic Bermont index fossils (as listed by McGinty, 1970; DuBar, 1974; and Petuch, 1988, 1989) such as *Melongena* (*Rexmela*) *bispinosa* (Philippi, 1844), *Fasciolaria okeechobeensis* Tucker and Wilson, 1932, *Latirus maxwelli* Pilsbry, 1942, *Vasum floridanum* McGinty, 1940, *Fusinus watermani* (M. Smith, 1940), and *Strombus mayacensis* Tucker and Wilson, 1933, demonstrating the contemporaneous nature of their beds. Several other newly-described index fossils, including *Lindoliva griffini* Petuch, 1988, *Lindoliva spengleri* Petuch, 1988, and *Malea petiti* Petuch, 1989 were also collected in both quarries, indicating that the dredged fossiliferous sediments came from the same stratigraphic horizon.

At both quarries, the Bermont Formation is approximately 10 meters thick and is stratigraphically more complex than had previously been reported (DuBar, 1974). Of particular interest are the basal beds of the formation, which contain a large number of undescribed gastropod species. Although containing the same species at both localities, the basal beds in the Capeletti Brothers pit are marly and unconsolidated whereas the stratigraphic equivalents in the Griffin Brothers pit are indurated into a thick layer of dense limestone. This richly fossiliferous indurated bed (figure 22), which averages 2 meters in thickness and is found at a depth of approximately 15 meters below surface, has also been uncovered at construction sites in the Loxahatchee area of West Palm Beach and south of South Bay, along the North New River Canal in central Palm Beach County. The most numerous and largest blocks of this Bermont limestone, however, have been dredged from the Griffin Brothers pit. Since the Griffin pit and its exposures of Bermont material are adjacent to the Holey Land Wildlife Refuge (named for the numerous shallow craters formed by World War II bombing practice, *vide* Howard

A. Griffin, Jr.), the basal indurated bed has been informally referred to by local paleontologists as the "Holey Land Unit." A cursory survey of the gastropods of the Holey Land Unit has shown that a large percentage of the species appear to be undescribed and that several belong to previously unknown subgenera and species complexes.

In this paper, eight new gastropod species and a new gastropod subgenus are described from the basal beds ("Holey Land Unit") of the Bermont Formation. Included are *Cypraea* (*Macrocypraea*) *spengleri* n.sp. and *Cypraea* (*Pseudozonaria*) *portelli* n.sp. (Cypraeidae), *Melongena* (*Miccosukea*) *cynthiae* n.sp. and *Melongena* (*Miccosukea*) *holeylandica* n.sp. (Melongenidae), *Scaphella seminole* n.sp. (Volutidae), and *Conus capelettii* n.sp., *Conus griffini* n.sp., and *Conus lemoni* n.sp. (Conidae), and the new subgenus of *Melongena*, *Miccosukea* n.subgen. Institutional abbreviations, for the deposition of type material, include: USNM (Department of Paleobiology, National Museum of Natural History, Smithsonian Institution), UF (Florida Museum of Natural History, University of Florida, Gainesville, Florida), CM (Department of Paleontology, Carnegie Museum of Natural History, Pittsburgh, Pennsylvania), and FAU (Department of Geology, Florida Atlantic University, Boca Raton, Florida).

SYSTEMATICS

Gastropoda
 Prosobranchia
 Cypraeacea
 Cypraeidae
Cypraea Linnaeus, 1758
Macrocypraea Schilder, 1930

Cypraea (*Macrocypraea*) *spengleri* new species
 (figures 5, 6)

Material examined: HOLOTYPE—Length 107 mm, dredged from 20 m depth in Capeletti Brothers pit #11, 7 km west of Florida Turnpike, due west of Hialeah, northeastern Dade County, Florida, CM 35728; PARATYPES—Length (fragmentary) 105 mm, dredged from 15 m depth in Griffin Brothers pit, 10 km west of US Highway 27, along Palm Beach-Broward County line, Florida, FAU 320; length 120 mm, internal mold, same locality as previous paratype, FAU 321; length 158 mm, same locality as previous two paratypes, Spengler collection, Lantana, Florida; length 83 mm, same locality as holotype, Petuch collection.

Description: Shell typical of subgenus, large, inflated, subcylindrical; aperture narrow, widening toward anterior end, arcuate; columella (holotype) with 33 narrow teeth that extend into aperture; lip with 44 narrow teeth; fossula poorly developed, with 9 narrow teeth; base of shell rounded; auricles (extrapolated from damaged type material) well developed, projecting; color pattern (faintly preserved on holotype) composed of numerous small, widely-scattered round spots.

Etymology: Named for Mr. John Spengler of Lantana, Florida, who has helped me collect at several important fossil sites in the Everglades.

Discussion: *Cypraea spengleri* represents the first new species of the subgenus *Macrocypraea* to be described from the fossil record of the continental United States, and is the largest cowrie known from the Neogene of Florida. The cypraeid fragments from the "Glades Unit" of the Belle Glade pit, listed by Hoerle (1970:63) as "*Cypraea ?cervus* Linne," are probably referable to *C. spengleri*. The "*Cypraea cervus*" from Belle Glade and Ortona Lock, listed by McGinty (1970:55), is also probably *C. spengleri*. Based on the specimen in the Spengler collection (158 mm paratype), I also previously referred the new species to *C. cervus* (Petuch, 1988: plate 24, fig. 10). As molds, *C. spengleri* is relatively common in the Holey Land limestone at the Griffin Brothers pit, but the preservation is poor and most specimens are fragmentary. Complete specimens such as the holotype, however, have only been collected in the unconsolidated marly facies of the Holey Land Unit in northern Dade County.

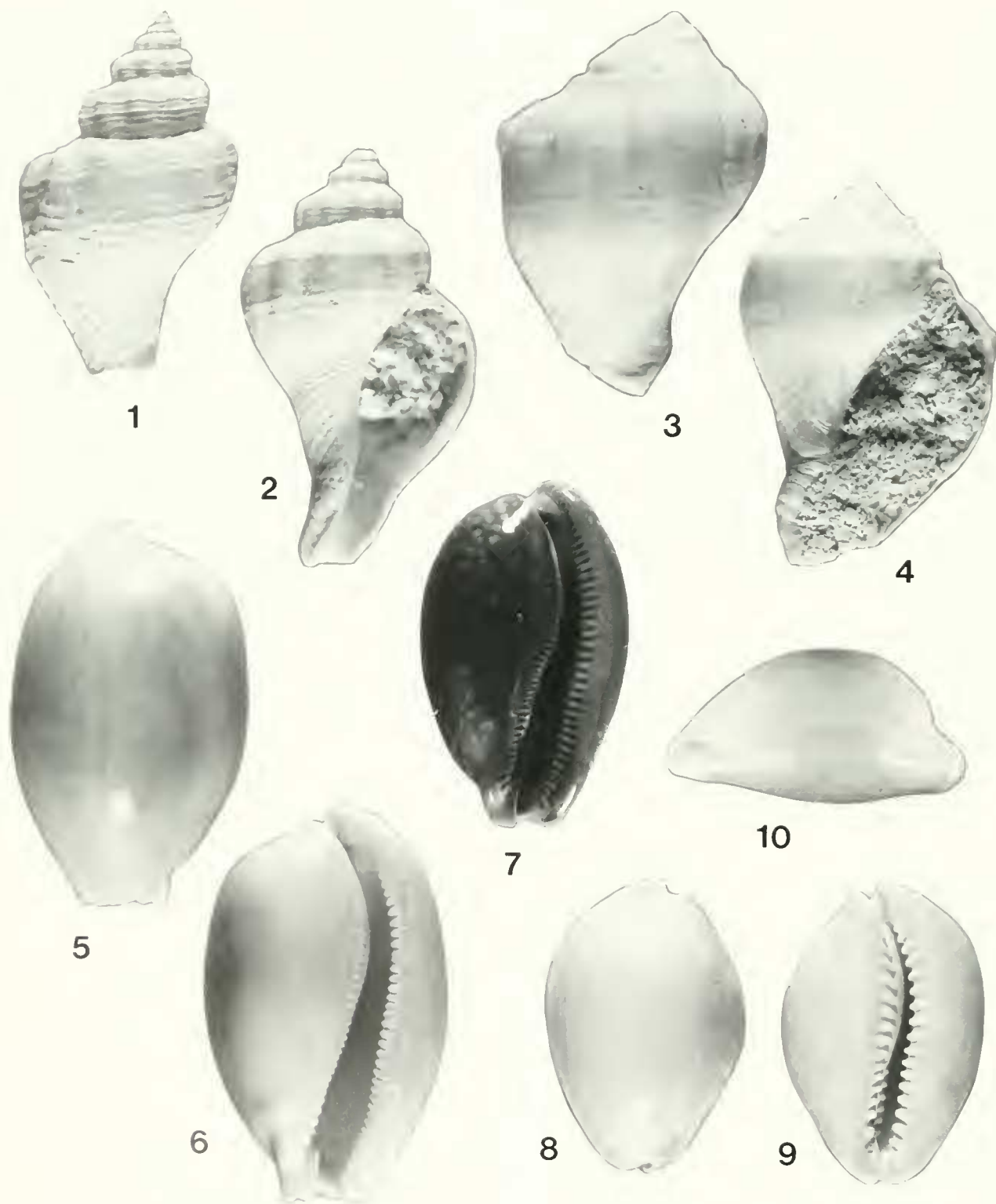
Cypraea spengleri is most similar to *C. (Macrocypraea) cervus* Linnaeus, 1771 from the Carolinian Province and, based on its similar shape and size, is probably the direct ancestor of that well known Recent species. The main difference between the two cowries, however, is seen in the form of the apertural teeth, particularly those of the columella; in *C. cervus*, the columellar teeth are slender and elongated, extending well onto the base of the shell (figure 7), while in *C. spengleri*, the columellar teeth are short and coarse and do not extend onto the base but, instead, terminate along the edge of the columella (figure 6). Likewise, the labial teeth of *C. cervus* are finer and more elongated than those of *C. spengleri*, and also extend farther onto the shell base. The number of apertural teeth also differs between the two species, with *C. cervus* having more teeth (average 37 columellar, 43 labial) than *C. spengleri* (average 33 columellar, 40 labial).

Pseudozonaria Schilder, 1927

Cypraea (*Pseudozonaria*) *portelli* n.sp.
 (figures 8, 9, 10)

Material examined: HOLOTYPE—Length 25 mm, dredged from 15 m depth in Griffin Brothers pit, 10 km west of US Highway 27, at Broward-Palm Beach County line, Florida, UF 25955; PARATYPE—Length 25 mm, from 20 m depth in Capeletti Brothers pit #11, 7 km west of Florida Turnpike, northeastern Dade County, Florida, Petuch collection.

Description: Shell average size for subgenus, oval in outline, dorsoventrally flattened; beaks well developed, projecting; margins thickened, sharply angulate; base slightly rounded; spire region shallowly indented; aperture narrow, slightly arcuate; teeth blunt and coarse, numbering 15 along columella and 19 along lip (of ho-



Figures 1-10. New Melongenids and Cypraeids from the "Holey Land Unit" of the Bermont Formation. 1. *Melongena* (*Miccosukea*) *cynthiae* n. sp., dorsal view of paratype, length 55 mm; 2. *Melongena* (*Miccosukea*) *cynthiae* n. sp., ventral view of holotype, length 35 mm; 3, 4. *Melongena* (*Miccosukea*) *holeylandica* n. sp., dorsal and ventral views of holotype, length 35 mm; 5, 6. *Cypraea* (*Macrocypraea*) *spengleri* n. sp., dorsal and ventral views of holotype, length 107 mm; 7. *Cypraea* (*Macrocypraea*) *cervus* Linnaeus, 1771, ventral view of 55 mm specimen, for comparison with *C. (Macrocypraea) spengleri*. 8, 9. *Cypraea* (*Pseudozonaria*) *portelli* n. sp., dorsal and ventral views of holotype, length 25 mm; 10. *Cypraea* (*Pseudozonaria*) *portelli* n. sp., lateral view (left) of holotype.

lotype); color pattern (faintly preserved on holotype) composed of numerous, densely-packed specklings, often fusing together to form longitudinal stripes, on the dorsum and numerous evenly-spaced small spots on margins; anterior and posterior tips each with 2 large patches.

Etymology: Named for Mr. Roger Portell, Florida Museum of Natural History, who collected the holotype.

Discussion: *Cypraea portelli* represents the first species of its subgenus to be found in the fossil record of the United States. Until now, *Pseudozonaria* was unknown in the Caloosahatchee Province (Miocene to Pleistocene S.E. United States and the Floridian Peninsula), and was thought to have been confined to the Gatunian Province (Miocene to Pleistocene Caribbean, northern South America, and western Central America) (Petuch, 1982; Vermeij & Petuch, 1986). In the Recent, the subgenus is represented by three species from the Panamic Province of the tropical western Americas; *C. (Pseudozonaria) arabicula* (Lamarek, 1811), *C. (Pseudozonaria) nigropunctata* Gray, 1828, and *C. (Pseudozonaria) robertsi* (Hidalgo, 1906). Of the three living species, *C. (Pseudozonaria) portelli* is most similar to *C. robertsi*, being the same size and having the same type of apertural teeth, shape and form of the aperture, and color pattern. The new species differs from *C. robertsi*, however, in having a broader, more rounded outline and in having angled, thickened margins.

In the fossil record of the Gatunian Province of the Caribbean basin, *C. portelli* is most similar to *C. raymondrobertsi bowdenensis* (Pilsbry, 1922) from the Pliocene of Jamaica and the Dominican Republic. Both species share the same broad, oval shell outline and the same flattened appearance. The apertural teeth of *C. raymondrobertsi bowdenensis*, however, are proportionally much larger and better developed than those of *C. portelli*, and extend much farther across the base of the shell. *Cypraea portelli* was probably the last *Pseudozonaria* to live in the Atlantic.

Buccinacea
 Melongenidae
 Melongeninae
Melongena Schumacher, 1817

Miccosukea new subgenus

Diagnosis: Shells average-sized for genus, but more elongated and fusiform, generally resembling *Fasciolaria* species in outline; shoulders, especially those of body whorls, rounded, without prominent spines or flutings; shoulders of whorls ornamented with low, rounded knobs or evenly-spaced low, rounded axial ribs; spires and body whorls both heavily sculptured with numerous strong spiral cords; spiral cords finer and more numerous on siphonal canals; siphonal canals very well-developed, elongated; siphonal canals of some species well-differentiated from body whorl, narrow, giving shells appearance of small *Pugilina* or *Busycon* species; aperture wide, flaring, oval in shape; spire height and development vari-

able within subgenus, with some species having elevated, scalariform spires and others having low, slightly-stepped spires; sutures slightly impressed, smooth, without fine fimbriations or erenulations.

Type species: *Melongena (Miccosukea) cynthiae* new species, described here. Lower beds ("Holey Land Unit") of Bermont Formation, Aftonian Stage, Pleistocene, Palm Beach County, Florida (figures 1, 2).

Other species in *Miccosukea*: *Melongena (Miccosukea) holeylandica* new species, described here. Lower beds ("Holey Land Unit") of Bermont Formation, Aftonian Stage, Pleistocene, Palm Beach County (figures 3, 4); *Melongena (Miccosukea)* sp., fragmentary, Bermont Formation, Aftonian (Yarmouth?) Stage, Pleistocene, Dade County, Florida.

Etymology: The new subgenus honors the Miccosukee Seminole Tribe of the Everglades.

Discussion: The new subgenus represents a separate evolutionary line off the *Melongena* Schumacher, 1817 (*sensu stricto*) stock, and appears to have been endemic to southern Florida. This local radiation differs from classic *Melongena* species in containing smaller, more fusiform shells with better-developed and more elongated siphonal canals, and in lacking sutural fimbriations and large shoulder spines. *Miccosukea* also differs from the subgenus *Rexmela* Olsson and Harbison, 1953 in being more fusiform in shape, in having much better developed siphonal canals, in lacking large shoulder spines, and in lacking the "collar" of fimbriations bordering the suture.

At several Bermont localities, *Melongena (Miccosukea)* species and *Melongena (Rexmela)* species, such as *M. (Rexmela) bispinosa* (Philippi, 1844), occur together and show that the two subgenera were sympatric.

Melongena (Miccosukea) cynthiae new species
 (figures 1, 2)

Material examined: HOLOTYPE—Length 38 mm, dredged from 15 m depth in Griffin Brothers pit, 10 km west of US Highway 27, at Broward-Palm Beach County line, Florida, USNM 448813; PARATYPES—Length 55 mm (incomplete), same locality as holotype, FAU 322 (figure 1); lengths 41 and 52 mm, same locality as holotype, FAU 323; length 64 mm, same locality as holotype, Petuch collection.

Description: General shell shape and form as for subgenus; spire protracted, scalariform; spire whorls convex; suture impressed; spire, body whorl, and siphonal canal heavily sculptured with numerous large, evenly-spaced spiral cords; smaller secondary cords present between large primary cords.

Etymology: Named for Mrs. Cynthia Mischler, Department of Geology, Florida Atlantic University.

Discussion: *Melongena cynthiae*, type of the new subgenus, more closely resembles a small *Pugilina* Schu-

macher, 1517 species than it does other western Atlantic melongenids. Unlike *Pugilina* species, *M. cynthiae* has a distinctly rounded shoulder on the body whorl, rounded and convex spire whorls, and an impressed suture. In having a protracted, scalariform spire, the new species somewhat resembles high-spired forms of *Melongena* (*Rexmela*) *corona* (Gmelin, 1791), such as *altispira* Pillsbry and Vanatta, 1934. *Melongena cynthiae* differs from these high-spired forms, however, in having a much more elongated body whorl and in having a much better developed, and longer, siphonal canal. Being in *Miccosukea*, *M. cynthiae* also lacks the open shoulder spines and fimbriated sutures of *Rexmela* species.

The new species is also similar to the stratigraphically higher *Melongena* (*Miccosukea*) *holeylandica* n.sp. (figures 3, 4), but differs in having a much higher, scalariform spire, in having a longer siphonal canal, and in being more heavily sculptured with strong spiral cords. A large, undescribed *Miccosukea* species has also been collected, although only as fragments, in the uppermost beds of the Bermont Formation in the Capeletti Brothers pit. This un-named species also has a high, scalariform spire, but has a smoother, less sculptured shell. The "Melongenid-new genus, new species" that I previously illustrated (Petuch, 1988: plate 24, figs. 1, 2) is *M. cynthiae*.

Melongena (*Miccosukea*) *holeylandica* new species
(figures 3, 4)

Material examined: HOLOTYPE—Length 35 mm, dredged from 12 m depth in Griffin Brothers pit, 10 km west of US Highway 27, at Broward-Palm Beach County line, Florida, USNM 448814; PARATYPES—Lengths 48, 51, and 55 mm, same locality as holotype, FAU 324; length 52 mm, same locality as holotype, Petuch collection.

Description: General shell shape and form as for subgenus; spire low, rounded, slightly dome-shaped; subsutural area raised to form large, rounded spiral cord; subsutural cord producing minutely canaliculate suture; spire, body whorl, and siphonal canal sculptured with low, faint spiral cords; shoulder of body whorl ornamented with scattered small, low knobs; siphonal canal broad.

Etymology: Named for the area adjacent to the type locality, the Holey Land Wildlife Refuge.

Discussion: The similarities and differences between *Melongena holeylandica* and the only other named *Miccosukea* species, *M. cynthiae*, are discussed under the preceding description. The "Melongenid-new genus, new species" that I previously illustrated (Petuch, 1988: plate 24, figs. 5, 6) is *M. holeylandica*.

Volutaceae
Volutidae
Scaphellinae
Scaphella Linnaeus, 1758

Scaphella seminole new species
(figures 18, 19, 20, 21)

Material examined: HOLOTYPE—Length 52 mm, dredged from 20 m depth in Capeletti Brothers pit #11, 7 km west of Florida Turnpike, due west of Hialeah, northeastern Dade County, Florida, CM 35729; PARATYPES—Length 53 mm, same locality as holotype, CM 35730 (figures 20, 21); lengths 54, 55, and 56 mm, same locality as holotype, FAU 325; lengths 55, 56 mm, same locality as holotype, Petuch collection.

Description: Shell small for genus, fusiform, with rounded, sloping shoulder; spire proportionally low, with sloping whorls; top of shoulder marked with faintly incised, shallow furrow; area between suture and shoulder furrow producing wide, faintly raised subsutural band; protoconch proportionally large, rounded, domelike, with rounded calcarella; first 2 postnuclear whorls heavily sculptured with numerous, evenly-spaced, large axial ribs; axial ribs overlaid with numerous fine spiral threads, producing slightly cancellate appearance; columella with 4 large plications; color pattern, when preserved, composed of 7–9 rows of large, evenly-spaced rectangular checkers.

Etymology: Named for the Seminole Indian Tribe of the Everglades region.

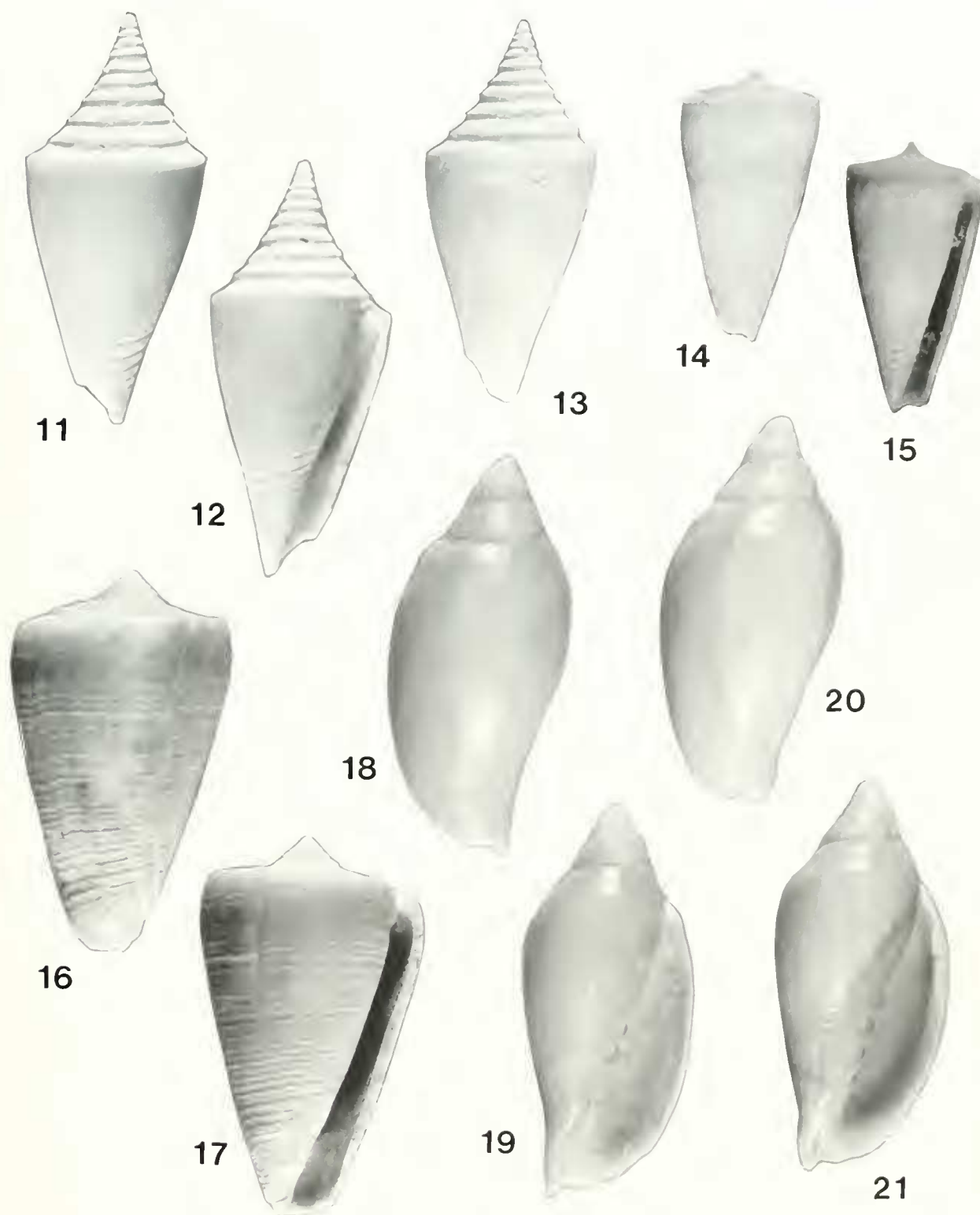
Discussion: *Scaphella seminole* is the smallest of the known fossil *Scaphella* species, with the average length of the type lot (all adult specimens with thickened, posteriorly-flaring lips) being only around 54 mm. The new species is similar to the late Pliocene-early Pleistocene Caloosahatchee Formation *S. floridana* (Heilprin, 1886), but differs in having a much smaller, stumper shell with a much lower, unprotracted spire. The axial ribbing on the postnuclear whorls of *S. floridana* is also coarser and better developed than that of *S. seminole* and extends onto the third whorl.

Conacea
Conidae
Conus Linnaeus, 1758

Conus capelettii new species
(figures 11, 12, 13)

Material examined: HOLOTYPE—Length 38 mm, dredged from 20 m depth in Capeletti Brothers pit #11, 7 km west of Florida Turnpike, due west of Hialeah, northeastern Dade County, Florida, CM 35731; PARATYPES—Length 33 mm, same locality as holotype, CM 35732 (figure 13); lengths 36, 39, 41, and 42 mm, same locality as holotype, Petuch collection.

Description: Shell slender, elongately subpyriform, bi-conic; shoulder sharply angled, carinated; spire very protracted, scalariform; body whorl and spire smooth, with silky texture; anterior end encircled with 8–10 deep, evenly-spaced grooves; aperture narrow, widening slightly



Figures 11-21. New Conids and Volutids from the "Holey Land Unit" of the Bermont Formation. **11, 12.** *Conus capelettii* n.sp., dorsal and ventral views of holotype, length 38 mm; **13.** *Conus capelettii* n.sp., dorsal view of paratype, length 33 mm; **14, 15.** *Conus griffini* n.sp., dorsal and ventral views of holotype, length 15 mm; **16, 17.** *Conus lemoni* n.sp., dorsal and ventral views of holotype, length 56 mm; **18, 19.** *Scaphella seminole* n.sp., dorsal and ventral views of holotype, length 52 mm; **20, 21.** *Scaphella seminole* n.sp., dorsal and ventral views of paratype, length 53 mm.



Figure 22. Detail of a fossiliferous limestone block from the basal beds ("Holey Land Unit") of the Bermont Formation. This block was dredged from 15 m depth in the Griffin Brothers pit on the Palm Beach-Broward County line in the central Everglades Basin. The lucinids on the left and lower left are approximately 60 mm in diameter.

toward anterior end, color pattern, when preserved, composed of wide longitudinal flammules and zig-zags.

Etymology: Named for Mr. Ronald Capeletti, of Capeletti Brothers, Inc., Hialeah, Florida, in thanks for allowing me to collect large suites of Bermont material on his property.

Discussion: *Conus capeletti* has the highest, most scalariform spire of any cone shell known from the Plio-Pleistocene fossil record of Florida. Based on shell shape, size, and spire form, the new species appears to be more closely related to *Conus scalaris* Valenciennes, 1832 from the Recent western coast of Mexico than to other western Atlantic cone shells. *Conus capeletti* differs from *C.*

scalaris, however, in having a proportionally shorter body whorl with a distinctly more pyriform shape. The new Bermont species is also similar in shape to some slender morphs of the Recent Carolinian Province *C. floridanus* Gabb, 1868, but differs primarily in having a sharper, more carinated shoulder and in having a much higher, scalariform spire.

Conus griffini new species
(figures 14, 15)

Material examined: HOLOTYPE—Length 15 mm, dredged from 15 m depth in North New River Canal, along US Highway 27, 30 km south of South Bay, Palm Beach County, Florida, CM 35733; PARATYPE—Length 18 mm, dredged from 15 m depth in Griffin Brothers pit, 10 km west of US Highway 27, at Broward-Palm Beach County line, Florida, Petuch collection.

Description: Shell small for genus, slender, straight-sided; shoulder sharply angled, carinated; spire low and flattened; body whorl smooth and shiny; anterior tip encircled with 8–10 low, rounded cords; aperture narrow; protoconch mammillate, projecting above spire line; color pattern, when preserved, composed of single row of small spots around midbody.

Etymology: Named for Mr. Howard A. ("Andy") Griffin, Jr., Davy, Florida, in thanks for allowing me to collect on his property over the last eight years.

Discussion: *Conus griffini* is the first member of the *C. magellanicus* Hwass, 1792 species complex to be found in the fossil record of continental North America. In the Recent, this complex of small cones is confined to shallow water, coral reef areas of the West Indies, Bahamas, and Caribbean Basin. The new Bermont species is most similar to the Recent *C. kalafuti* DaMotta, 1987 from Roatan Is., Honduras, and both cones have the same small size, flat spire, projecting nipple-like protoconch, and color pattern composed of a checkered midbody band. *Conus griffini* differs from *C. kalafuti*, however, in having a more slender, straight-sided shell and in having stronger spiral cords around the anterior tip. Otherwise, the two species are very similar, and *C. griffini* is most probably the ancestor of the Honduran *C. kalafuti*.

Previously (Petuch, 1988: plate 23, fig. 2), I had illustrated and referred to this new Bermont cone as "*Conus* cf. *eversoni* Petuch, 1987." That species, which is also related to *C. kalafuti* and is also from Roatan Is., Honduras, has a larger and more elongated shell than *C. griffini*. The protoconch of *C. griffini* is also proportionally larger than that of *C. eversoni* and is more prominently mammillate.

Conus lemoni new species
(figures 16, 17)

Material examined: HOLOTYPE—Length 56 mm, dredged from 15 m depth in Griffin Brothers pit, 10 km

west of US Highway 27, at Broward-Palm Beach County line, Florida, CM 35734; PARATYPES—Length 49 mm, same locality as holotype, CM 35735; lengths 37, 45, 48, and 68 mm, same locality as holotype, FAU 326; length 65 mm, dredged from 20 m depth in Capeletti Brothers pit #11, 7 km west of Florida Turnpike, due west of Hialeah, northeastern Dade County, Florida, Petuch collection.

Description: Shell broad, heavy, with wide shoulder; shoulder angled, with rounded edge; spire low, flattened, with early whorls projecting above later whorls; suture indented; spire whorls distinctly canaliculate; body whorl heavily sculptured with numerous, closely-packed, large spiral cords; aperture narrow; color pattern, when preserved, composed of numerous rows of small spots, often arranged in bands, and scattered large axial flammules that often coalesce to form longitudinal stripes; spire marked with evenly-spaced crescent-shaped flammules.

Etymology: Named for Dr. Roy Lemon, Department of Geology, Florida Atlantic University.

Discussion: *Conus lemoni* is a new member of the *Conus spurius*, 1791 species complex of the Pliocene-to-Recent Caribbean and Floridian regions. Morphologically, the new Bermont species combines the shell characters of two Recent species, *C. spurius atlanticus* Clench, 1942 and *C. lorenzianus* Dillwyn, 1817. In having a broad shell shape, rounded shoulder edge, and low spire, *C. lemoni* resembles the Carolinian *C. spurius atlanticus*. On the other hand, in being heavily sculptured with closely-packed spiral cords and in having a flammulated color pattern, the new Bermont cone resembles the southwestern Caribbean *C. lorenzianus*. It is possible that *C. lemoni* is ancestral to both closely-related species.

In the Florida fossil record, *C. lemoni* is similar to several undescribed subspecies of *C. spurius* from the upper beds of the Bermont Formation and the overlying Fort Thompson Formation (late Pleistocene). The new Holey Land species differs from the younger *C. spurius* subspecies, however, in having distinctly canaliculate spire whorls and in being heavily sculptured with spiral cords.

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